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THE PHILOSOPHY OF DON HASDAI CRESCAS

BY MEYER WAXMAN, New York.

WITH Hasdai Crescas, the list of Jewish mediaeval thinkers, worthy of the name, closes ; but his importance lies rather in his own originality than in his chronological position. He is among the few Jewish philosophers who exhibited originality of thought, critical acumen, and logical sequence, combined with a profound religious feeling. It is rather the irony of fate that this philosopher, who surpasses in depth and power of analysis even Maimonides, should have received rather slight attention at the hands of the historians of Jewish thought. The books and articles dealing with Crescas are few in number. The book by M. Joel, *Chasdai Crescas*, is perhaps the largest and best of them ; but, with all its merits, it fails to present a comprehensive view of Crescas's thought. It is therefore the hope of the present writer that the attempt in the following pages to present a systematic treatment of the philosophical conceptions of Crescas will be welcomed by students of the history of Jewish thought in particular, and of philosophy in general.

The method adopted in treating the subject is the problematic one ; chiefly because it is the most elucidating in dealing with a subject of a philosophico-theological character such as ours, and also because the work of Crescas, *Or Adonai*, 'The Light of God,' lends itself to such treatment, since it is primarily a book on dogmatics

and follows the usual division into dogmas. As the main interest of this study lies in the philosophic aspect of Crescas's thinking, only such problems have been included as have a philosophic bearing, while all purely theological questions have been excluded. For this reason, all detailed discussion concerning *creatio ex nihilo*, wherein Crescas opposes Gersonides with great critical ability, are omitted. Broadly speaking, the study is divided into two parts corresponding to the two central ideas around which the problems group themselves, viz. (a) God, (b) God and the world—the problems themselves being treated in the various chapters and subdivisions.

The theses laid down in this study are the following :

§ 1. Crescas holds a prominent place as a critical examiner of some of the important Aristotelian conceptions such as space, time, and the infinite. His criticism is decidedly modern in spirit, and some of his anticipations and theories were later fully corroborated by the founders of modern philosophy and cosmology. These anticipations, together with his revolt against Aristotelianism in an age when it was all-dominating, prove the high character of his work. Moreover, his thoughts on this subject were not entirely restricted to a small circle of readers of Hebrew, but also found their way to the external world. It follows, therefore, that the seeds sown by Crescas are not only valuable in themselves, but have borne fruit, though how this was accomplished is not known. It is extremely difficult to trace the path over which thought travels.

§ 2. The study intends to point out the mental proximity between Crescas and that great Jewish thinker Spinoza. An attempt has been made to draw a sketch of Crescas's positive philosophy, which has been compared at each step

with that of Spinoza's system. Great care was observed in avoiding final decisions in regard to the influence of the former upon the latter. Unfortunately, the term influence is often misunderstood to mean either a direct borrowing or at least a kind of imitation. If influence is to be interpreted in a broad sense, and is to imply the existence of a number of points of contact, and the supply of a certain motive power or impulse in a definite direction by one system upon another, such an influence of Crescas upon Spinoza probably exists. The word *probably* is used advisedly, for the evidence at hand only justifies us in using the term influence with this qualification.

Crescas, however, is only an indirect critic of Aristotle through his attack on Maimonides' proof of the existence of God and theory of attributes which embody the Aristotelian principles. Hence it is that in order to elucidate Crescas's contribution to Jewish and general philosophy we have to turn to Maimonides first. Maimonides collected twenty-six propositions, which are found scattered through the *Physics*, *Metaphysics*, and *De Coelo*, and on these as a basis he reared his philosophical theology. Crescas reproduces these propositions in full, and even quotes at length their proofs which were omitted by Maimonides, and then launches his criticism not only against Maimonides but against Aristotle himself. It was rather a bold attempt for those times (end of the fourteenth century) to dare to criticize Aristotle, but he pursued it with unflinching persistency. It is necessary, in order to have a full comprehension of Don Hasdai's philosophy, to follow him in all the intricate mazes of Aristotelian physics. We will, therefore, quote the propositions verbatim.

CHAPTER I

MAIMONIDES' PROOFS OF THE EXISTENCE OF GOD.

CRITICISM AND OBJECTION OF CRESCAS.

I. Infinite magnitude does not exist.¹ This proposition is a fourfold one, and the most important of all. It will be discussed in its four aspects, together with the proofs and Crescas's objections. II. The simultaneous existence of an infinite number of bodies of finite magnitude is impossible.² This proposition is simply a corollary of the first, for if the existence of such a number of bodies would be possible, the sum of all would give us an infinite magnitude, and this has been proved unreal. III. There is no infinite causal regressus, that is, the series of causes that lead up to the present world of things is not infinite, but must have had a beginning.³ IV. Change is found in four categories, that of substance, quantity, quality, and that of place; corresponding respectively to the categories, we have generation and corruption (*γένεσις καὶ φθορά*), growth and decay, qualitative change, and locomotion or spatial.⁴ V. Motion is a change from the potential to the actual.⁵ VI. Movement

¹ שמציאות בעל שיעור אחד אין תכלית לו שקר *Moreh Nebukim*, Wilna, 1904. II, first haḳdamah; *Guide of the Perplexed*, Eng. tr. by Friedländer, Part II, 1; *Physics*, III, 5, 7, ed. Prantl, Greek and German, Leipzig, 1854; *Metaph.*, XI, 10.

² *Guide*, *ibid.*, p. 2; *Physics*, *ibid.*

³ שמציאות עלות ועולות אין תכלית למספרם שקר והמשל בו שיהיה השכל הזה על דרך משל סבתו שכל שני, וסבת השני שלשי, וסבת השלשי רביעי כן אל לא תכלית זה גם כן שקר מבואר *Guide*, *ibid.*; *Metaph.*, II.

⁴ *Guide*, *ibid.*; *Physics*, III, 1; *Metaph.* XII, 2.

⁵ *Physics*, III, 1; *Metaph.* XI, 9.

is of four kinds, essential, accidental, forced, and partial.⁶ Essential movement means the movement of a body according to its nature and essence. Accidental pertains to the movement of an accident, such as the movement of blackness in a body from one place to another, blackness being only an accident. By the partial is meant the movement of a part of a body when the whole is moved, but with reference to that part, such as the movement of a nail in a ship, which is moved by the movement of the ship as a whole. Partial movement, as different from accidental, refers to such things as are bodies for themselves, but are attached by artificial means to another body. Forced movement includes all kinds of movement which are unnatural. According to Aristotle, each of the elements has a natural place whither it tends. A movement in that direction is natural; thus the natural movement of fire is upwards and of earth downwards; but a movement in the opposite direction is unnatural. The movement of a stone upwards is contrary to nature, and can be accomplished only by the force exerted by the thrower. VII. Whatever changes is divisible, and whatever is not divisible does not move and is no body.⁷ Aristotle proves this by explaining that every change is an intermediary state between two opposites,⁸ or between a *terminus a quo* and a *terminus ad quem*; therefore, a body in the state of change must necessarily be divisible, and since movement is a kind of change, it follows that whatever is moved is divisible, and also the converse. VIII. Whatever moves

מו"נ. התנועות מהן בעצם מהן במקרה ומהן בהכרח ומהן בחלק ⁶

ג. חלק ב', *Moreh*, II, 3; *Physics*, VIII, 4.

⁷ Τὸ δὲ μεταβάλλον ἅπαν ἀνάγκη διαιρετὸν εἶναι, *Physics*, VI, 4.

⁸ *Metaph.* 1069 b.

accidentally will ultimately rest of necessity.⁹ This is based on Aristotle's conception of the accidental which identifies it with the possible. Whatever is possible must of necessity become actual in infinite time. Every possible has two phases, e.g. possible of existence, it is possible for it to exist, and possible not to exist. Both of these two possibilities must be realized in an infinite time, for if not, the thing is either necessarily existing or necessarily non-existing. Likewise, the possible of movement when it does move will ultimately rest, for the opposite must necessarily be realized. IX. A body moving another body is itself moved at the same time.¹⁰ This, however, does not include such things as move others by being an end to which things strive. It was on account of this fact that Aristotle made the unmoved mover the end of existence, for otherwise he could not be a first cause. The mediaeval philosophers, however, had some difficulty with this proposition. The magnet attracting iron and moving it towards itself seemed to form an exception to the rule laid down in the proposition.¹¹ Various answers were given but are too absurd to reproduce. X. Whatever pertains to body, either the body is the stay of it, e.g. accidents, or it is the stay of the body, as form.¹² XI. Some things that have their stay in the body are divided when the body is divided, as accidents are. Some things that are the stay of the body, e.g. soul, are not divided.¹³ XII. Every force pertaining to body is

⁹ *Physics*, V, 3.

¹⁰ *Ibid.*, VIII, 5.

¹¹ וכבר הקשי על זה ממה שנראה בחוש שהאבן המגנטים שניע הברזל
בשימשכהו אצלו ולא יתנועע, *Or Adonai*, ed. Vienna, p. 9 b.

¹² אם שתהיה עמידתו בנשם כזקרים, או שתהיה עמידת הנשם בו כצורה
הטבעית, *Moreh*, II, 5; *Physics*, VIII, 10.

¹³ *Ibid.*

finite, since body is finite.¹⁴ XIII. All kinds of changes are not continuous, except spatial motion, and of it only the circular.¹⁵ XIV. Spatial motion is the first of movements both in nature and in time.¹⁶ XV. Time is an accident of motion, and both are so related that they exist simultaneously. There is no movement but in time, and whatever has no movement is not in time.¹⁷ XVI. Whatever is not a body does not fall under the category of number.¹⁸ XVII. Whatever is moved has a mover, either as an external force or as an internal tendency which is the cause of the movement.¹⁹ XVIII. Whatever is being realized in passing from the potential to the actual, the cause of the realization is external by necessity.²⁰ It could not be inherent in the thing itself, for in that case the thing would never be possible, but always existing. XIX. Whatever has a cause for its existence is possible of existence. XX. The converse, what is necessary of existence has no cause. XXI. Whatever is composite, the composition is its cause of existence, and therefore possible, as evidenced from above. XXII. Body is composed of matter and form by necessity, and is the bearer of some accidents by necessity. XXIII. Whatever is possible, even if the possibility is internal, and the thing does not need any external force for realization, yet it is possible that it should not exist.²¹ XXIV. Whatever is potential is material.

¹⁴ *Ibid.*¹⁵ *Physics*, VIII, 8.¹⁶ *Ibid.*, VIII, 7.¹⁷ *Ibid.*, IV, 12.¹⁸ כל מה שאינו גוף לא יושכל בו מנין, literally, in whatever is not a body enumeration cannot be conceived, *Metaph.*, XII, 8.¹⁹ כי כל מה שיצא מן הכח אל הפועל מוציאו זולתו וגומר, *Moreh*, II, 9; *Physics*, VII, 1.²⁰ *Metaph.* XII, 2.²¹ In the translation of this proposition I have followed Hasdai Crescas's

XXV. The elements of a composite body are matter and form, and therefore a body is in need of an agent to unite them. XXVI. Time and motion are eternal.²²

THE LOGICAL CONSEQUENCES OF THE PROPOSITIONS.

In basing his proofs of the existence of God and the theory of attributes, Maimonides does not start from the first proposition, but on the contrary from the twenty-fifth. This proposition, which is in turn based on the twenty-second which states that a body is composite by necessity, and on the fifth which defines the nature of motion as the process of realization, says: Every composite body in order to become needs a mover. Since all bodies in the perceptible world are composite, it is necessary to look for their causes or movers. This series of causes cannot go on to infinity, as has been demonstrated in the third proposition. Again, in regard to movements, we found in proposition IV that there are four kinds, and of these locomotion is the earliest, as shown in proposition XIV, and the circular the most perfect. The movement of the first sphere is then the cause of all movement in this world. However, by the same force of reasoning we are compelled to search for the mover of this sphere. We have seen in proposition XVII that a body may be moved either by an external cause or an

interpretation in 'אור ה', 12 b, where he says: ומה שיראה לנו בביאור זאת : ההקדמה כפי מה שאומר. כל מה שהוא בכח דבר והאפשרות ההוא הוא בעצמו וזה שהאפשרות הוא בכח דבר ממנו שהאפשרות בעצמו כאילו תאמר שיהיה אפשר בעצמו שישתנה וישוב לבן ואפשר שיהיה האפשרות נתלה בדבר חוץ ממנו כאלו תאמר שאפשר בשישחיר שישחיר בתנאי שיהיה המקבל גשם לה.

²² *Physics*, VIII, 1.

internal one. The cause of movement of the first sphere cannot be inherent in itself, since by proposition XXVI we know that movement is eternal, and thus it is infinite; the moving force of the first sphere then would have to be infinite, but this is impossible. It was shown in proposition I that no infinite body exists; the first sphere then is a finite body. But as such it cannot have any infinite force, for it was proved in proposition XII that no finite body can have an infinite force inherent in it. It follows that the cause of movement of the first sphere is an external one.²³ We have, then, established the proof of the existence of a prime mover. It must be the prime, for otherwise we shall have an infinite causal series.

The nature and character of the mover can also be deduced from the same propositions. The external prime mover cannot be corporeal, for then, according to the ninth proposition, it would be moved while moving, and necessarily it would require another body as its mover, and thus *ad infinitum*, but this is impossible (prop. III). Again, since it is incorporeal it is also unmoved, for movements are either essential to bodies or accidental, and the prime mover not being a body does not move either essentially or accidentally. Further, since it is unmoved it is also indivisible and unchangeable, for, according to proposition VII, whatever is not divisible does not move and is not a body, the converse of it being equally true. From the force of the same conclusions follows also the unity of the prime

²³ יתחייב בהכרח לפי זה הדעת שתהיה הסבה הראשונה לתנועת הגלגל ר"ל נבדל מן הגלגל כמו שחייבתהו החלוקה. The word נבדל here means not only external but incorporeal. But for the sake of clearness of thought we prefer to treat of the incorporeality in the next paragraph. *Moreh*, II, 13 b; *Guide*, p. 16.

mover. There is only one, for in accordance with proposition XVI, whatever is neither a body nor a force inherent in a body does not fall under the category of number. We have then established the existence of God, His incorporeality, indivisibility, immutability, and unity.²⁴

Maimonides quotes also several other proofs borrowed from Aristotle's works, one from the *Metaphysics*. It is the one mentioned above. There must be an unmoved mover, for since we find a moved mover, and we also find a thing moved and not moving, it follows that there must be an unmoved mover; as it is proved that when we find a thing composed of two elements, and then we find one element alone, it follows that the other element must also be found alone. The nature of the first cause is deduced from the fact that it is unmoved, in the same way as above.²⁵ In his third proof, Maimonides follows closely the Aristotelian found in *Metaphysics*, book XII, ch. vi. There must be one substance necessary of existence, otherwise the world of things would be destructible.²⁶ The third proposition is again utilized, for there cannot be an infinite regressus of possibles. Since it is necessary of existence through itself it is incorporeal, for according to proposition XXI, the composition of a body is the cause of its existence. The rest of the qualities follow necessarily. Maimonides quotes also a fourth proof which adds nothing new, but repeats the same argument in a different form. Maimonides

²⁴ *Moreh*, II, p. 13 b; *Guide*, II, p. 16.

²⁵ *Moreh*, II, p. 14 a; *Guide*, II, pp. 17 sq.

²⁶ א"כ יתחייב בהכרח בזה העיון אחר שיש נמצאות היות נפסדות כמו שנראה שיהיה נמצא אחד ל' הווה ולא נפסד, וזה הנמצא שאינו ל' הווה ולא נפסד אין אפשרות הפסד בו כלל אבל הוא מחויב המציאות ל' הווה, *Moreh*, II, 15 a.

produces two more proofs for the oneness of God. Of these two, one is mentioned by Saadia and Bahia. Suppose there were two Gods, there would have to be at least one point of difference between them and some points of similarity in as far as both are Gods. This would involve the existence of two elements in the nature of the Gods, and thus they would be composite. The second proof is from the harmony and uniformity of the sum total of existence. This bears evidence to the oneness of God. If there were two Gods, there ought to be either a division of labour or collaboration, for the interdependence testifies to one plan. But the first is impossible, for then God would not be all-potent, and, consequently, there would be a cause restraining the Divine power; but this is contrary to the concept of God. This argument is also brought by Saadia, but Maimonides gives it a more Aristotelian form.²⁷

In comparing Maimonides' proofs with the proofs of those who went before him, we see that, while he did not contribute much originality to the problem, he at the same time systematized and arranged the proofs in complete logical order, which made them convincing. Most of the antecedent philosophers either omitted some links in the logical chain, such as the impossibility of an infinite causal regressus, or hinted at it without making their thoughts clear. Maimonides, as a careful builder, included everything. In regard to Aristotle, he exhibits himself a faithful follower, without accepting the conclusion at which he arrives.

²⁷ *Moreh*, II, 16 a-b; *Guide*, p. 23.

PROOFS OF THE ARISTOTELIAN PROPOSITIONS.

Aristotle proves that the infinite does not exist either as a separate independent thing, or as a sensible thing, or as a movable. The infinite, says Aristotle, may be of several kinds, either such that it is not in its nature to be measured or passed through, as the voice is invisible,²⁸ or such one that cannot be passed through on account of its extent.²⁹ It is the last kind of infinite that the discussion turns on, for the first kind of infinite cannot be a principle nor an element. There cannot be a separate independent infinite as a thing by itself, for it must be either divisible or indivisible. If it is indivisible, it cannot be infinite except in the same way as the voice is indivisible, which is a quality that does not belong to it by nature; but we speak of an impassable infinite, which implies extent, and thus it is coupled with magnitude. But if it is divisible, it is a quantity and cannot exist by itself. Again, if it is divisible and exists as a substance, every part of it will be infinite, and this is absurd, for there cannot be many infinities in one. It must, therefore, be indivisible, but it is magnitude, and magnitude does not exist by itself. It must, therefore, be an accident, but then it is not a principle, nor a separate.³⁰

There cannot be an infinite body: first, it is impossible by the mere definition of a body which describes it to be a thing that has superficies bounded by planes, and this

²⁸ *Physics*, III, 5; *Metaph.*, book K, ch. x.

²⁹ Spinoza, in his *Epistola XII*, *Opera*, ed. Van Vloten and Land, Hague, 1882, makes a similar distinction, calling the first infinite, the second indefinite.

³⁰ *Physics*, III, 5; *Metaph.*, book K, ch. x.

already implies finitude. There are, however, more concrete arguments. An infinite body could be neither simple nor composite, for if the elements are finite, one at least must be infinite, and then the others will be destroyed since the infinite element must surely have most potency. If all the elements were infinite, the infinite body would be composed of many infinities, which is absurd. Simple it cannot be, for it is not of the four elements, since they are all finite and there are no other elements beside them. Again, how could anything be created, for becoming implies change from one contrary to another, and infinite has no contraries. It is evident, therefore, that there cannot be a simple infinite body.

Further, if there is an infinite body, it must have weight, whether light or heavy, but this is impossible, for the light moves upwards and the heavy downwards, but the infinite has neither an 'up' nor a 'down'. Again, since every body is in place, infinite body must have infinite place, but there is not any infinite place, since there are six kinds of place, the up and the down, &c. Finally, since body must be in place, and the latter by definition is the limit of the surrounding body, body must be finite.³¹

It is also impossible that there should exist a moving infinite, whether moving in rectilinear fashion or circular. Every body has a definite place, and the place of the part and the whole is the same. Consequently, an infinite body cannot move rectilinearly, as it is composed either of like parts or unlike parts. If of like parts, no part can move, for the place of the part is the place of the whole and it is infinite. If of unlike parts, the parts must be either finite or infinite; if finite, then at least one is infinite in magnitude,

³¹ *Physics*, III, 5; *Metaph.*, book K, ch. x.

and this is impossible.³² If they are infinite in number, then there are an infinite number of places, but this is impossible.³³ Again, an infinite body must have infinite weight, and because of it its moving is unthinkable. The heavier a body is the less the time in which it moves. It follows that an infinite body must either move in no time or the 'now', which is the same, or that if we posit for it some time we will find a finite body moving in the same time. The relation of time and weight is a reverse one. Now if we posit some time for the infinite, it is possible to find a finite body of whatever weight moving in the same time. We have then a finite and infinite body moving in the same ratio of time: this is contrary to the principles of motion. Still more, if we multiply the body of finite weight, it will move in less time than the body of infinite weight, but such a supposition is absurd.

Likewise, the circular movement of an infinite body is impossible, for if the circle is infinite, the radii are also infinite and the distance infinite; the circle then would never be completed and the distance never measured through. Again, the time of the revolution of a circle is finite, but the distance in this case is infinite; how then can infinite distance be traversed in finite time?³⁴ Finally, it is impossible for the infinite to be either an active agent or a patient. The relation between two bodies, one affecting and the other affected, is the following: Two bodies equally large will both be affected in an equal time; if one is smaller, it is affected in less time. The relation also varies according to the power of the agent, and the

³² Cp. above, this section.

³³ *De Coelo*, ed. Prantl, I, ch. 7; *Physics*, III, 5; *Metaph.*, book K, ch. x.

³⁴ *De Coelo*, I, ch. 5.

affection must be accomplished in a certain limited time. It follows, therefore, that the infinite can neither affect nor be affected, for since we must posit for it a certain time, as it cannot be affected nor affect in no time, we can always find a certain finite body that is either affected or affects in a similar amount of time. Moreover, if the finite body is increased in size, it will be affected or affect in a longer or a shorter time respectively than the infinite body. But this is contrary to the principle of action and passion.³⁵

These, in short, are the arguments of Aristotle against the infinite, which are very accurately reproduced by Crescas. He shows an extensive acquaintance with Aristotle's works hardly displayed before by any Jewish philosopher. He now launches his criticism against each of the arguments, examining it in detail.

CRESCAS'S REFUTATIONS OF ARISTOTELIAN ARGUMENTS.

Crescas, in attacking Aristotle, follows the latter's arguments in logical order. First, Aristotle argues that there is no separate infinite as a thing in itself, for if it does exist and is divisible, its parts would have to be infinite (cp. above). This, replies Crescas, does not necessarily follow. Since the infinite we are speaking of is a separable, not a corporeal one, why should it be divisible or its parts infinite? Is the mathematical line divisible, and are its parts points? Why can there not be an indivisible infinite?³⁶ But the main force of the Aris-

³⁵ *Ibid.*, p. 273.

³⁶ ונאמר שהמופת ההוא הוא הטבעי ונערך על הדרוש וזה שהמניח נודל בלתי ב"ת אמר במציאות שעור נבדל ולזה ג"כ לא יתחייב שגדר

totelian argument against the existence of a separate infinite, as Crescas rightly observes, consists in the impossibility of the existence of a separate magnitude not connected with a body (cp. above). A magnitude cannot exist separately, for then space would have to exist separately of the body, but according to the Aristotelian conception of space it is impossible. Outside of the world nothing exists; there is no vacuum stretching beyond its boundaries, and, since whatever is in the world is body, it follows that if we do conceive any magnitude, we must conceive it in bodily form; hence there is no separate magnitude, and, consequently, no separate infinite.

But, says Crescas, this line of reasoning is a *petitio principii*, as the conclusion is still to be established; for should we prove the existence of a vacuum there is a possibility for an infinite to exist. Crescas then proceeds to refute Aristotle's contention of the non-existence of the infinite, attacking the basic principle. There is no vacuum, argues Aristotle, for if there were, movement in it would be impossible. Movement in space is caused by the difference in the natural inclination of things to strive towards certain points, some tending upwards, some downwards; the vacuum has no such places. A body in it would either never move, for why should it move in one direction rather than in the other, or never stop, since

הבב"ת יצחק על כמו שלא יתחייב זה בקו הלמודי, *Or Adonai*, p. 14 a. Spinoza, in his *Epistola XII*, in discussing the infinite, produces the same argument: 'Quare omnis illa farrago argumentorum quibus substantiam extensam finitam esse, philosophi vulgo moliuntur sua sponte ruit. Omnia illa substantia corpoream ex partibus conflatam supponunt ad eundem etiam modum alii qui postquam sibi persuaserunt, lineam punctis componi multa invenire potuerunt argumenta quibus ostenderunt lineam non esse in infinitam divisibilem.' *Opera*, II, p. 42.

there is no tendency to a certain place.³⁷ Again, not only could there not be natural motion, but not even violent motion. Projectiles thrown by a person or instrument continue their motion after the motor ceased to have contact with them, because the particles of the air are moved, and they impart the motion continually to the projectile. But in a vacuum the motion cannot be conveyed; the projectile must therefore stop of necessity.

Further, the rate of motion varies according to the power of the motor and according to the media and their power of resistance. The thinner the medium, the more accelerated is the motion. If a vacuum exists, motion in it would have to take place in no time. Two bodies, *A* and *B*, move in different media, *C* and *D*. If the motors are equal, the rate of time and motion of *A* and *B* will vary according to *C* and *D*. But if *D* is a vacuum, there is no ratio, for what comparison could there be between the motion of *B* which is not offered any resistance whatever, and that of *A* which has to overcome it in a degree? The movement of *B*, therefore, will be in no time. But movement must be in time; a vacuum, therefore, does not exist. Finally, if a vacuum exists, it is possible for two bodies to occupy one place. When anything is thrown into water, an amount of water equal to the body is displaced, and a similar process takes place in air. What then will happen to a body in a vacuum? If the vacuum merely recedes then it is nothing; it is just this that we endeavoured to prove. But if the vacuum is something, it must permeate the body;³⁸ why then should not any body permeate

³⁷ *Physics*, IV, 7.

³⁸ *Physics*, IV, 8. See also Simplicius's commentary to that chapter, translated by Thomas Taylor in his translation of the *Physics* of Aristotle, London, 1806, p. 228.

another body? The reason that body does not permeate body is not because of its substance or colour but because of its distance or intervals. Now if the intervals of the vacuum may permeate a body, why not any other intervals?

These arguments Crescas attempts to disprove in the following manner. It does not follow, says he, that the existence of a vacuum should prevent motion. It is true that a vacuum does not possess any differences of a spatial nature such as upwards and downwards, but still, as long as the points of natural tendency exist and the elements possess that tendency, they will go on moving though the medium of movement is a vacuum. As for violent motion, it seems that the moment a body is set in motion, it acquires by virtue of its elements and their tendency towards their natural place a propensity to move without any assistance on the part of the medium. Further, argues Crescas, granted that rectilinear motion cannot be in a vacuum, still what is there to prevent the existence of an extra-mundane vacuum, wherein a body can move in a circular fashion, a movement which does not necessitate the possession of the *termini a quo* and *ad quem*.³⁹ In regard to the second argument of Aristotle, Crescas contends that it is based on a false premise. The argument assumes that the ratio of the motion of one body to the motion of the other is as medium to medium, when

³⁹ ואם היו מעורבין (כלומר היסודות) ברקות היות להם האותות במקומם הטבעי וחלוף טבע מה שממנו ומה שאליו לסבת קרובו או רחוקו מהמקיף או מהטרכו. ולזה לא מנע מציאות התנועה הטבעית וההכרחית במציאות הרקות וכ"ש שלא יחויב בזה המופת המנעות מציאות הרקות חוץ לעולם, למה שאם היה הרקות שאין לו טבע ממה שממנו ומה שאליו לא יתחייב המנעות תנועה סבובית לנשם כדורי. *Or Adonai*, p. 14 b.

media are different in density, but this is untrue. We, asserts Crescas, must grant to every moving body an original motion which was imparted to it by the motor varying according to the strength of the motor. The medium only retards the motion by its resistance, but it cannot accelerate it. The formula, therefore, ought to be: the ratio of retardation of one body to the retardation of another body varies as the media. In a vacuum, therefore, resistance is reduced to zero, but the original motion is preserved, and the body is still moved in a certain time. Finally, the argument of the impenetrability of matter (cp. above) is objected to by Crescas. Aristotle's dictum that body cannot penetrate body on account of its distances and dimensions cannot be true, for a body is impenetrable not on account of its possessing mere distances, but because of the matter filling those distances. Immaterial distances, such as the interval which is called a vacuum, may permeate a body. It is evident, therefore, that a vacuum may exist. Further evidence of its existence is the fact that it is quantitatively conceived, as, for instance, if the air in a vessel is partly pumped out, we say that the vacuum is large or small according to the amount of air pumped out. It is then necessarily a magnitude, and though granting that there is not an infinite body, the existence of a separable infinite magnitude is still more necessitated. Beyond the world there is no body, the vacuum cannot be limited by body, but it surely cannot be limited by a vacuum; it must be infinite.⁴⁰

While these objections hardly have any value in the light of modern science, yet according to the spirit of the times they are valid, and greatly testify to the critical

⁴⁰ Or Adonai, *ibid.*, 15 a.

ability and analytic acumen of Crescas. They surely form a step in the formation of the right scientific cosmogony. The conceptions of the infinity of the world and of the existence of infinite space were necessary conditions in the generation of the Copernican system and the new cosmological view. Surely, Crescas as well as Aristotle was ignorant of the real laws of motion. It is remarkable that Aristotle, who had a notion of the law of inertia as seen from his arguments against the existence of a vacuum, namely, that if a vacuum exists perpetual motion were possible, for in vacuo a body may move on for ever, and who also recognized the resistance of air as evidenced from his second argument against the existence of a vacuum, should not have discovered the law of inertia and have considered the particles of air as helping motion rather than impeding it, yet in Crescas's refutation we perceive a glimpse of the law of gravitation. It is not known whether Crescas ever exerted any influence upon Giordano Bruno or not, though another Italian, Franz Pico, quotes his anti-Aristotelian arguments in full,⁴¹ but whatever be the case, it is interesting to observe the similar pulsations of mental activity in different ages, periods, and lands.

Crescas next proceeds to refute Aristotle's arguments against the existence of an infinite body. The latter's general argument from the definition (cp. above) of body as a thing that has limited superficies, says Crescas, is only a *petitio principii*.⁴² It is just this limitation that we seek to establish. The one who asserts the existence of an infinite body denies the assumed definition. But, says he further, his other arguments are also not proved. The

⁴¹ M. Joel in his *Chasdei Crescas*, note iv, Anhang.

⁴² In Crescas's words it is termed מערכה על הדרוש.

infinite, says Aristotle, cannot be a composite, for if it is, the elements would have to be infinite, and this is impossible. Crescas rejoins, The impossibility of the existence of infinite elements is not established; the reason, according to Aristotle, for the non-existence is that the infinite cannot be conceived; but, asks Crescas, must they be conceived in order to exist?⁴³ The elements *qua* elements may have existence though not exactly known. This objection marks a departure from the dominant Aristotelian system which ascribed existence only to such things that were supported by the evidence of the senses and logical reasoning. Such a conception could hardly be grasped by an Aristotelian. That a thing in itself, to use the Kantian terminology, may exist without being either perceived or logically analysed or described, was an impossibility to them.⁴⁴

Further, says Crescas, the objection that if the infinite is composite, one element at least must be infinite and then it would destroy the rest, can be answered in this way, that the infinite may be devoid of qualities just as the heavenly spheres are. However, here Crescas seems not to understand Aristotle. Aristotle, in *Metaphysics*, book K, ch. x, states distinctly that one element must not fall short in potency, and whatever is in potency must sometimes be realized, so that finally it will destroy the other element.⁴⁵ Crescas probably thought that it meant the infinite element would have stronger actual qualities. Again, Aristotle's argument for the impossibility of the existence of an

⁴³ והנה אין מהכרח ההתחלות במה שהן התחלות להאמן ידועות וזה
מבואר בעצמו *Or Adonai*, p. 15.

⁴⁴ *Or Adonai*, p. 15 a.

⁴⁵ Cp. Brandis, in his *Handbuch der Geschichte der Griechisch-Römischen Philosophie*, II, p. 727; *Physics*, IV, 5.

infinite body on account of its weight and its tending to its natural places (cp. above) is not unimpeachable. Why, asks Crescas, must it have weight? Is it not because all sensible bodies in the sublunar sphere have it? But suppose the infinite is different, is not the matter of the heavenly spheres, according to Aristotle, devoid of weight?⁴⁶ This is another indictment against the following of the chain of evidence of the senses and logical reasoning.

Finally, Crescas directs his main attack against the arguments from the nature of space. Aristotle defines space as the limit of the containing body,⁴⁷ and consequently by its very definition and nature it must be finite and inherently connected with body. Where there is no body there is no space, and, therefore, the world as a whole is not in space though its parts are. This theory, says Crescas, is untenable. The whole conceptual structure of Aristotle of natural places, of upwards and downwards, and the tendency of various elements thereto, is built on false premises. How, asks he, can we assert that air has a natural place, the 'up', near the fiery sphere? What happens then to the middle layers of air? Are they in their natural place? but it was asserted that their natural place is the 'up'. If they are not in their natural place, we have then a phenomenon of variance of places, the place of the part differing from the place of the whole.⁴⁸ Again,

ואולם האומר בנשם בב"ת ואמר שאין לו כובד ולא קלות כמו⁴⁶
שיאמר בנרמים השמימיים לרעת אריסטו *Or Adonai*, p. 15 a.

⁴⁷ *Physics*, IV, 3.

⁴⁸ וזה שמקום האויר עד"ם לפי סברתי הוא השטח המקיף בקערירות
האש למה שיש לו שם ערבות ודמיון. ואמנם החלק האמצעי מן האויר
לא נמלט אם שהוא במקומו הטבעי. אם שאינו במקומו הטבעי יתחייב
שמקומו הטבעי אשר לחלק יתחלק למקום הטבעי אשר לכל והוא בתכלית
הגנוח, *Or Adonai*, p. 15 f.

the place of the element of earth is the 'down'. But the absolute down is only a point,⁴⁹ and a point is not in place.⁵⁰ Crescas, therefore, proposes a different definition of place. It is, as we should say, a receptacle of things, qualityless, immovable, and indescribable. It is infinite, for by its very nature it cannot be finite.⁵¹ In the world of things it is occupied, but beyond the world it exists as empty space. The fact that place is immovable answers Aristotle's arguments against defining place as an interval. Such a definition, says Aristotle, would compel us to admit the existence of a place to place, for if we move a vessel full of water, the interval of the vessel is transferred into another interval, and so on. But if we assume with Crescas that place is immovable, the difficulty disappears, for the vessel simply passes from one part of the universal vacuum to another. As for the water in the vessel, it is moved accidentally by the movement of the vessel. Aristotle explains the movement of the water in the same way.⁵²

The refutation of Aristotle's assertion of the impossibility for an infinite body to move either in a rectilinear or circular fashion runs in the following manner: Aristotle's first argument that the infinite cannot move rectilinearly, for this movement requires an 'up' and a 'down', and is therefore a limited movement, can be obviated by replying that though kinds of places may be conceptually limited in genus, yet they are not so in species. In other words,

⁴⁹ *De Coelo*.

⁵⁰ *Or Adonai*, p. 15 b.

⁵¹ שהמקום האמתי לגשם הוא הפנוי השהו לגשם אשר ימרידנו הגשם, *Or Adonai*, p. 14 b; again, הוא הרחקי אשר בין, *ibid.*, p. 15 b. Cp. above Crescas's arguments about the vacuum.

⁵² Simplicius *ad locum*, quoted by Thomas Taylor, *The Philosophy of Aristotle*.

there is no absolute point where we may say that this is the 'up', but there may be a series of 'ups' *ad infinitum*; the term 'up' being only our subjective designation. His second argument (cp. above) that if there exists an infinite body it would have infinite weight, and then would move in the 'now' is irrelevant, says Crescas. Since movement of a body must be in time, we shall have to posit a certain minimum for an infinite body. It is true that a finite body may be found that will move in the same time. But what of it? The law of relations of movement to movement, according to the weight, extends only down to a certain point.⁵³ Of course, Crescas shows here a poor conception of law, but a more accurate conception could hardly be expected in his time.

Crescas also attempts to disprove the Aristotelian arguments against the possibility of an infinite body moving in a circular fashion. Aristotle says that there can be no circular movement, because the distance between two radii would be infinite, and it is impossible to traverse an infinite distance. To this Crescas rejoins that, though the lines may be infinite, yet the distance between them may be finite. The arguments, however, are too obscure and abstruse to reproduce here, and as they affect the subject very little we may omit them. He seems to imply that there is a possibility of an infinite body moving in an incomplete circle, so that parts of it may move a finite distance. But how he could at all conceive of the movement of an infinite body is difficult to see, for granted that there is an infinite space, the infinite body occupies it all by virtue of its own definition. And what meaning has movement, unless we assume the modern conception of

⁵³ *Or Adonai*, p. 16 a.

a growing infinite, but this is hardly what Crescas means. However, Crescas wrote many things for the sake of argument, simply to show that what Aristotle said can be refuted, just as Aristotle himself multiplied unnecessary arguments. What is important for us is the establishment of the theory of infinite space, and the possibility of an infinitude of magnitudes. This leads, as Crescas well saw,⁵⁴ to the possibility of the existence of other worlds besides this one, a conjecture which was later well established. Especially important is his remark against Aristotle's arguments, that if there were many worlds the elements would move from one to the other. Why should they? asks Crescas. Is it not possible that the elements we know exist only in this world, and the other worlds have different elements and different tendencies? We notice here the beginning of the fall of the Aristotelian cosmology, based on the evidence of senses only, an event which was delayed for some time but accomplished in full by such masters as Copernicus, Giordano Bruno, and Galileo.

The second proposition, that it is impossible for an infinite number of finite magnitudes to exist, stands and falls with the first. The criticism of the third proposition, the impossibility of an infinite causal regressus, is interesting. Crescas does not refute it entirely, it being necessary for his proof of the existence of God, as will be shown. He does give it a different interpretation. Why, asks Crescas, can there not be an infinite number of effects which are at the same time causes to each other? It is true that we must posit one prior cause, but that should not prevent

⁵⁴ וזה שכבר התבאר במה שקדם חיוב מציאות גודל בלתי בעל תכלית
וחיוב ריקוי או עלוי בלתי בעל תכלית חוץ לעולם הוא מבואר שמציאות
עולמים רבים אפשר, *Or Adonai*, p. 17 a.

the posterior causes from being infinite. Aristotle's argument that every intermediate term must be preceded by a first,⁵⁵ would be well applicable if the causal series were a timely one, namely, that each event in the series must precede the other in time. But the relation of cause and effect is really one of logical priority. Aristotle himself argues for the eternity of the world, and is therefore forced to admit that the first cause is only prior in a logical sense and not in time, as the first sphere is also eternal. Why can we not say that out of the first cause there emanated an infinite number of effects which exist simultaneously, instead of one effect as Aristotle wants us to believe? And since an infinite number of effects is possible, what prevents us from assuming that the effects are also causes to one another, since causal priority does not posit temporal precedence?⁵⁶ Of course, in spite of Crescas's criticism, the necessity of a first cause, first in necessity, is well established ; but the form is changed, and has an important bearing upon the whole conception of infinity. The manner in which Crescas utilized this proposition for the proof of the existence of God, so very different from the customary peripatetic way, was commended by Spinoza.⁵⁷ Aristotle was not entirely ignorant of the weakness of his assertion, and in *Metaphysics*, book XII, ch. vi, he mentions a similar interpretation to that of Crescas, but in his main discussions in *Metaphysics* his language shows the contrary.

The eighth proposition stating that whatever moves accidentally will eventually rest of necessity, which forms

⁵⁵ *Metaphysics*, I a or II.

⁵⁶ והנה כשנניח ג"כ העלולים הבב"ת כל אחת עלה לחברו לא יקרה מזה שום בטול אלא שאנו צריכים לדבר יכריח מציאותם על העדרם אחר מזה שום בטול אלא שאנו צריכים לדבר יכריח מציאותם על העדרם אחר שכלם אפשרי המציאות

⁵⁷ *Opera*, V, 11 ; *Epistola XII*.

a link in the proof of the existence of God, is severely scrutinized by Crescas. Is it not possible, asks he, that accidents exist as long as the substance itself; now if the substance is eternally moved, why not the accidents? Do not the lower spheres move eternally, because of the essential movement of the first sphere, though their own movement is accidental? The crucial point of the Aristotelian argument is, that since a mover while moving another body is moved itself, a power in a body while it moves the body is also moved accidentally, and consequently it will have to rest of necessity. Crescas says, It does not follow necessarily, for as long as the body can be moved eternally, why should the movement of the force ever have to stop since it is connected with the essential movement of the body?⁵⁸

His criticism of the tenth proposition is interesting though of little importance for the subject. It relates to the famous Aristotelian theory that form is the stay of body. Crescas, after quoting Ibn Roshd, who asserts that body by evidence of sense is really one but logic forces us to admit composition because of its corruptibility, asks, Why can we not conceive matter as having a certain form by itself, the corporeality, for instance, consisting in a kind of general quality such as occupying space? Of course, when we contemplate a particular piece of matter we find it to have a particular form, but this is only the individual form, and while essential yet is not the stay of the body, for the material form is always in existence and is really the bearer of the individual form.⁵⁹ This remark, though short, is very suggestive. It reminds us of the Cartesian principle that all matter is extension.

⁵⁸ *Or Adonai*, 18 a.

⁵⁹ *Ibid.*, 18 b.

Crescas, in his refutations, attacks also the twelfth proposition, which is of great importance in the Maimonidian proof of the existence of God. The proposition asserts that every force in a finite body is finite. It is based on the assumed relation of motion to force. The rate and time of a moved body varies inversely to the force moving it. The greater the force, the less the time. If there exists an infinite force in a finite body, that body will either be moved in the 'now' or a finite force will be equal in moving power to an infinite. (Cp. above, Aristotle's proof of the impossibility of an actual infinite.) Crescas first refers to his refutation of the above-mentioned argument in regard to the infinite moving in 'now', where he contends that since movement must be in time there is a minimum which is necessary even for an infinite. The law of the relation of time to force will be valid only above that minimum.⁶⁰ In addition, says Crescas, granted that the relation holds true as regards the strength or celerity of the motion, still since there can be an infinite movement in time, why cannot the force of a finite body, having a definite and limited rate of motion, move a body infinitely, when there is no cause for its ceasing, and no resistance impeding it? Especially such bodies as the heavenly spheres which are of an ethereal substance, and consequently offer no resistance, could be moved eternally even by a finite force. This critical remark displays a quite advanced conception of motion and resistance, more penetrating than that of Aristotle, who related the continuity of motion to the force and employed the assumed relation as a cardinal proof of the existence of a first mover.

למה שיחס הכח אל הכח יהי בזמן העודף על זמן השרשי הידוע⁶⁰
אצל הטבע, *Or Adonai*, p. 18 b.

Finally, the Aristotelian conception of time is attacked. (This forms proposition XV.) Time, says the Stagyrte, is an accident of motion, and cannot be conceived without it. This statement comprises four premisses. 1. Time is an accident joined to movement; 2. either is not found without the other; 3. and is not conceived without the other; 4. and, finally, whatever has no movement is not in time. But, rejoins Crescas, is not time a measure of rest as well? Do we not measure the state of rest of a body in time, whether it is long or short? The first two premisses then fall. The third, however, may be justified if we define rest as the privation of motion. The conception of time is joined to motion and not conceived without it, though not always found together with motion. Crescas, therefore, proposes a new definition of time. Time is the concept of continuity of a certain state of a body, whether it is movement or rest. It is true that time is an accident, but an accident relating to the soul and not to anything else.⁶¹ This conception of time is quite a modern one, and reminds one of the Kantian concept.

THE PROOFS OF MAIMONIDES REFUTED.

After attacking the individual links which make up the Maimonidian proofs of the existence of God, Crescas proceeds to demonstrate the results of the refutations bearing on the proofs. The first proof of Maimonides (cp. above) makes essential use of the first proposition in

⁶¹ ולזה הנדר הנכון בזמן יראה שהוא שיעור התרפקות התנועה או
המנוחה שבין שתי עתות, *Or Adonai*, 19 a.

connexion with the twelfth, for if there exists an infinite body it has infinite force, and so it can be self-moved, and there is no need of a first mover. Again, propositions II and III are necessary, for if there is an infinite causal regressus there is no first cause. In the same way, several more propositions are needed. Since these propositions were refuted by Crescas (though proposition III, which is really the basic one, was not refuted, but given an entirely different interpretation), it follows that the proof as a whole is refuted. But, adds Crescas, even granting the truth of all these propositions, yet Maimonides has not established his case. The twelfth proposition stating that a finite body must have a finite force, which is a cardinal point in the proof, does not establish the impossibility of a force in a finite body moving in an infinite time where there is no resistance; though we may grant that the strength of the force is finite (cp. above). This objection alone is sufficient to overthrow the whole structure of the proof. There is no necessity for a first unmoved mover, for the sphere can be moved by its own force infinitely.

Again, Maimonides has not established the unity of God. He proves it by the sixteenth proposition, which asserts that whatever is neither a body nor a force in a body cannot be conceived under number unless it is a cause, and since there can be only one cause of that character to this world, the oneness of this cause follows. But, says Crescas, this argument would be sufficient if we assume that there is only one world. But since it was demonstrated (cp. above) that the existence of several worlds is possible, it is also possible that there should be several Gods, each one being a different cause of a different world in a different

relation, and as such the Gods may be counted. Thus, the numerical unity is not proved.⁶²

The second proof of Maimonides is based on Aristotle's assertion that if we find a thing composed of two elements, and then one element alone, it follows that the other element must also exist by itself (cp. above for the conclusion). The conclusion is attacked by Crescas, who says that logically it follows only that the separate existence of the other element is possible, but not that it is absolutely necessary. He supports his contention by an illustration drawn from physiology as it was understood in his time. We know that all living beings are also vegetative as far as growth is concerned. We find, though, vegetation without life, but we never find living beings not having the vegetative quality. (It is absurd, of course, from the modern point of view, that vegetation is a living organism.) We see, therefore, that it is not absolutely necessary for the two elements that compose a thing to exist separately, especially if one may act as a perfecting agent. The force of the Maimonidian argument is then broken.⁶³

The third argument of Maimonides, based on the assertion that all being cannot be perishable, since time and movement are eternal, is answered by Crescas in the following manner: The imperishability of all being does not follow from the eternity of time and movement, for if we supposed that they would all perish at once, the argument would be valid; but why can there not be a continual series of perishable beings, one following another? The premiss, therefore, has not been established.⁶⁴ He advances also another argument against the proof, but it

⁶² Or *Adonai*, 20 a. This subject will be discussed again in this chapter and in chapter II.

⁶³ *Ibid.*, 20 b.

⁶⁴ *Ibid.*

really has little force. In general, his refutation of the third proof is more for the sake of argumentation and logical casuistry than for the sake of serious discussion. Crescas himself, as will be evidenced in the second chapter, proves the existence of God through a similar chain of argumentation, though with a different interpretation. Finally, the last arguments of Maimonides are assailed. The arguments centre about unity. Crescas has already shown that Maimonides did not succeed in proving the oneness of the first cause. He now elaborates the subject, and analyses the other arguments of Maimonides. These arguments have often been quoted in Jewish as well as in scholastic philosophy, and run as follows (cp. Introduction): The existence of two Gods is impossible for several reasons: 1. If there were two, there would be a difference between them as well as a similarity; they would, therefore, be composite. 2. The harmony of the world and the interdependence of beings testify to the existence of one God. 3. If there were two Gods, we should have to conclude that either one God created a part of the world and the other another, or that one worked for a certain time and the other for another period, or that they co-operated. All these results are absurd. It would follow that God is a composite, is in time and possible, which consequences are untenable (cp. Introduction, as well as above in the exposition of the Maimonidian theory for elucidation). But, rejoins Crescas, the conclusion, namely, the oneness of God, is not warranted. First, the Gods must not be composite, for the difference between them need not be material; it may be only a causal one.⁶⁵ Second, since

ואם הב' כשנניח ההקדמות אמתיות הנה לא התבאר היותו א' וזה ⁶⁵
 שכבר יתחלפו בהיות א' עלה לאחר, *Or Adonai*, p. 20b.

we may posit several worlds, we may also posit several Gods, each one having his world.⁶⁶ This answers also the other arguments; for besides that the interdependence of this world of things does not prove anything, as there may be a pre-established harmony of plan between the Gods, it vanishes entirely with the assumption of the existence of several worlds, as it is evident. There are also other arguments quoted by Saadia and Bahia that are not affected by this assumption, but these arguments will be discussed in the second chapter together with the Spinozistic view on the subject.

We have reached a boundary line in Crescas's philosophy, namely, the end of his critical exposition of the proofs of the existence of God. The point of view of Crescas has been mentioned before. It will suffice to remark in passing that his endeavour is to show the invalidity of many philosophic arguments concerning theological dogmas, so that necessarily we have to rely upon tradition. However, what has happened to many others has happened to him, that while their aim has not been reached, the very negative side is valuable. He displayed in his criticisms a keen sense of philosophic acumen and originality, and were this book more widely known, its influence on general thought would undoubtedly be greater. His anticipations of modern conceptions have already been noticed. Yet Crescas has value, not only in his negative criticisms but also in his positive conceptions. It will be evident in the future chapters. We thus pass on to the second chapter.

⁶⁶ *Ibid.*, p. 21 a.

(To be continued.)